

## **SC010200 Unit Outline**

### **Introduction to Scientific Description and Organization**

#### **Unit 2: Parents and Offspring**

##### **Abstract**

In this life science unit children explore a variety of plants and animals within their local community. Through exploration of particular plants and animals in their habitats, they discover that the basic needs of plants and animals are air, food, water, shelter, and light. After learning what plants and animals need to grow, children recognize that humans, animals, and plants go through stages of growth and development. They explore a variety of young/offspring and their parents, such as dog/puppy, cat/kitten, and plant/seed. Children classify humans, animals, and plants as either parent or young/offspring. They identify and describe the characteristics of each and discover that these characteristics are passed on. Children identify and describe the similarities between parents and their young/offspring. They also discover that some young look different from their parents until they reach their adult form.

**Lesson 1 – Parents and Offspring (SC010201)**

As an introduction to life cycles, children are introduced to the concept that offspring resemble their parents. They examine several examples of offspring that resemble their parents closely. Children begin a project to care for a classroom animal family.

**Lesson 2 – Passing on Traits (SC010202)**

Children examine the individual traits of species of dogs. They distinguish between traits common to all members of a species and traits that vary in individuals. Finally, children associate the traits of offspring with their parents.

**Lesson 3 – Adopt A Pet (SC010203)**

Children select an animal to research for an imaginary adoption from a list that the teacher provides. They share aspects of their adopted animal with the rest of the class. Children consider how their adopted animal resembles or is different from its parents.

**Lesson 4 – Growing Up (SC010204)**

Children recognize that changes occur as organisms grow, but identify traits that are constant in parents and offspring.

**Lesson 5 – Growing Up Green (SC010205)**

Children recognize that changes occur as plants grow. They see that similar seeds can grow into different plants, and identify species characteristics.

**Lesson 6 – The Ugly Duckling (SC010206)**

Children observe several young organisms that look different from their parents. They look at changes that occur in development.

**Lesson 7—Where Is Baby? (SC010207)**

Children investigate nests, dens, and other animal homes where offspring are raised. They begin to identify the ways in which parents insure the survival of offspring.

**Lesson 8—Offspring in Our Community (SC010208)**

Children survey their own school and community for signs of nests and homes where the offspring of animals and plants develop.

**Lesson 9 – Parenting (SC010209)**

Using pictorial clues children develop a story of parenting in elephants.

**Lesson 10 – Protecting Every Offspring (SC010210)**

To observe more parent and offspring groups, children visit an animal shelter or zoo. They investigate ways in which animal families are protected and orphaned animals are rescued

**Michigan Benchmarks**

**III.3.E.1 Give evidence that characteristics are passed from parents to young.**

*Key Concepts:* Characteristics—hair and feather color, eye color, leaf shape, flower structure.

*Real-World Contexts:* Example of mature and immature organisms, such as dogs/puppies, cats/kittens, maple trees/saplings, beans/seedlings.

### **III.5.E.2 Describe the basic requirements for all living things to maintain their existence.**

*Key Concepts:* Needs of life—food, habitat, water, shelter, air, light, minerals.

*Real -World Contexts:* Selected ecosystems, such as an aquarium, rotting log, terrarium, backyard, local pond or wetland, wood lot.

### **II.1.E.1 Develop and awareness of the need for evidence in making decisions scientifically.**

*Key Concepts:* (K-2) observations; (3-5) data, evidence, sample, fact, opinion.

*Real-World Contexts:* Deciding whether an explanation is supported by evidence in simple experiments, or relies on personal opinion.

## **National Science Education Standards**

These benchmarks are compatible and support the National Science Education Standards for content K-4; specifically: “As a result of activities in grades K-4, all children should develop understanding of...life cycles of organisms.” The scope of this unit is limited, to allow the teacher to spend time exploring student preconceptions and to support a number of learning styles. This process requires the allocation of ample time for student conversations.

Many teachers are hesitant to open up discussion of reproduction at this age, because they fear inappropriate student questions. It is important to realize that student questions are often much more simple than we perceive at this age. When a student asks: “Where did I come from?” they often want to know the name of the hospital—not the process! Focus student questions with graphics, board reminders, and reminders. Answer questions briefly but accurately, and allow children to explore these ideas at their own level and pace.

## **Benchmarks for Science Literacy, AAAS Project 2061**

Building an observational base for heredity ought to be the first undertaking. Explanations can come later. The organisms children recognize are themselves, their classmates, and their pets. And that is the place to start studying heredity. However, it is important to be cautious about having children compare their own physical appearance to that of their siblings, parents, and grandparents. At the very least, the matter has to be handled with great delicacy so no one is embarrassed. Direct observations of generational similarities and differences of at least some plants and animals are essential.

Learning the genetic explanation for how traits are passed on from one generation to the next can begin in the middle years and carry into high school. The part played by DNA in the story should wait until students understand molecules. The interaction between heredity and environment in determining plant and animal behavior will be of interest to students. Examining specific cases can help them grasp the complex interactions of genetics and environment.

Kindergarten through Grade 2

Teachers should lead students to make observations about how the offspring of familiar animals compare to one another and to their parents. Children know that animals reproduce their own kind--rabbits have rabbits (but you can usually tell one baby rabbit from another), cats have kittens that have different markings (but cats never have puppies), and so forth. This idea should be strengthened by a large number of examples, both plant and animal, that the children can draw on.

By the end of the 2nd grade, students should know that

- There is variation among individuals of one kind within a population.
- Offspring are very much, but not exactly, like their parents and like one another.